

Storm Water Management Plan For Priority Projects (Major SWMP)

Project Name:	TAM TPM
Permit Number (Land Development Projects):	TPM 21002 ER 06-02-2006
Work Authorization Number (CIP):	
Applicant:	KEVIN TAM
Applicant's Address:	
Plan Prepare By (Leave blank if same as applicant):	HL ENGINEERING & SURVEYING 75A West 4th St. ESCONDIDO, CA 92025
Date:	January 12, 2007
Revision Date (If applicable):	7/29/08 - Added additional sheets for LID req.

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) requires all applications for a permit or approval associated with a Land Disturbance Activity must be accompanied by a Storm Water Management Plan (SWMP) (section 67.804.f). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Review Stage	Does the SWMP need revisions?		If YES, Provide Revision Date
	YES	NO	
TPM Initial Submission	✓		January 11, 2007
TPM - 2 nd Submission	✓		JUNE 24, 2007
→ 7/29/08 Add LID sheets			

Instructions for a Major SWMP can be downloaded at <http://www.co.san-diego.ca.us/dpw/stormwater/susmp.html>.

Completion of the following checklist and attachments will fulfill the requirements of a Major SWMP for the project listed above.

PROJECT DESCRIPTION

Please provide a brief description of the project in the following box. For example:

The 50-acre RC Ranch project is located on the south side of San Miguel Road in the County of San Diego (See Attachment 1). The project is approximately 1.0 mile east of the intersection of San Miguel Avenue and San Miguel Road and 1 mile south of the Sweetwater Reservoir. This project will consist of a planned residential community comprising of 45 single-family homes 72 and multi-unit dwellings.

The proposed project site is located off of the west side of Mac Tan Road, south of SR-76, north of Valley Center Road, east of Cole Grade Road, and west of Valley Center Road. The existing site consists of a single family residential structure, located on a single parcel. The project is located in the San Luis Rey Hydrologic Unit and the unnamed intermittent streams Hydrologic Subarea (903.16 HSA). The project site consists of a two parcel split with one parcel containing an existing single family residential home and the second parcel proposes grading for a future single family residence. No additional improvements are proposed on the existing single family residential home parcel at this time. Some undisturbed terrain covered with natural vegetation is proposed to remain.

PRIORITY PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

PRIORITY PROJECT	YES	NO
Redevelopment within the County Urban Area that creates or adds at least 5,000 net square feet of additional impervious surface area	✓	
Residential development of more than 10 units		✓
Commercial developments with a land area for development of greater than 100,000 square feet		✓
Automotive repair shops		✓
Restaurants, where the land area for development is greater than 5,000 square feet		✓
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface		✓
Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition.		✓
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff		✓
Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater	✓	

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered priority projects. Parking lots, buildings and other structures associated with utility projects are subject to SUSMP requirements if one or more of the criteria above are met.

If you answered NO to all the questions, then STOP. Please complete a Minor SWMP for your project.

HYDROMODIFICATION DETERMINATION

The following questions provide a guide to collecting information relevant to hydromodification management issues.

Table 2

	QUESTIONS	YES	NO	Information
1.	Will the proposed project disturb 50 or more acres of land? (Including all phases of development)		✓	If YES, continue to 2. If NO, go to 6.
2.	Would the project site discharge directly into channels that are concrete-lined or significantly hardened such as with rip-rap, sackcrete, etc, downstream to their outfall into bays or the ocean?		✓	If NO, continue to 3. If YES, go to 6.
3.	Would the project site discharge directly into underground storm drains discharging directly to bays or the ocean?		✓	If NO, continue to 4. If YES, go to 6.
4.	Would the project site discharge directly to a channel (lined or un-lined) and the combined impervious surfaces downstream from the project site to discharge at the ocean or bay are 70% or greater?		✓	If NO, continue to 5. If YES, go to 6.
5.	Project is required to manage hydromodification impacts.			Hydromodification Management Required as described in Section 67.812 b(4) of the WPO.
6.	Project is not required to manage hydromodification impacts.			Hydromodification Exempt. Keep on file.

An exemption is potentially available for projects that are required (No. 5. in Table 2 above) to manage hydromodification impacts: The project proponent may conduct an independent geomorphic study to determine the project's full hydromodification impact. The study must incorporate sediment transport modeling across the range of geomorphically-significant flows and demonstrate to the County's satisfaction that the project flows and sediment reductions will not detrimentally affect the receiving water to qualify for the exemption.

If you answered YES to any of the questions, please continue.

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide a description of the findings in text box below.

	QUESTIONS	COMPLETED	NA
1.	Describe the topography of the project area.	✓	
2.	Describe the local land use within the project area and adjacent areas.	✓	
3.	Evaluate the presence of dry weather flow.	✓	
4.	Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	✓	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	✓	
6.	Determine if there are any High Risk Areas (municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.	✓	
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.	✓	
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	✓	
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	✓	
10.	Determine contaminated or hazardous soils within the project area.	✓	

Please provide a description of the findings in the following box. For example:

The project is located in the San Diego Hydrologic unit. The area is characterized by rolling grassy hills and shrubs. Runoff from the project drains into a MS4 that eventually drains to Los Coches Creek. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements.

The project is located in the San Luis Rey Hydrologic Unit and the unnamed intermittent streams Hydrologic Subarea (903.16 HSA). The area is primarily comprised of existing residential development and agricultural land, only large estate residential development has occurred in the vicinity of the project site. There are no impaired or water quality limited segments directly associated with the project site. Drainage from the site is conveyed in a westerly manner, and eventually into Moosa Canyon Creek, then into the San Luis Rey River and ultimately into the Pacific Ocean at the mouth of the San Luis Rey River. The Pacific Ocean at the San Luis Rey River Mouth is identified as being impaired by bacterial stressors, and the lower portion of the San Luis Rey River is identified as being impaired by chloride and total dissolved solids. The project site is roughly 10 mile from the impaired waterbody.

Complete the checklist below to determine if Treatment Best Management Practices (BMPs) are required for the project.

No.	CRITERIA	YES	NO	INFORMATION
1.	Is this an emergency project		✓	If YES, go to 6. If NO, continue to 2.
2.	Have TMDLs been established	✓		If YES, go to 5.

No.	CRITERIA	YES	NO	INFORMATION
	for surface waters within the project limit?	✓		If NO, continue to 3.
3.	Will the project directly discharge to a 303(d) impaired receiving water body?		✓	If YES, go to 5. If NO, continue to 4.
4.	Is this project within the urban and environmentally sensitive areas as defined on the maps in Appendix B of the <i>County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects</i> ?		✓	If YES, continue to 5. If NO, go to 6.
5.	Consider approved Treatment BMPs for the project.	✓		If YES, go to 7.
6.	Project is not required to consider Treatment BMPs			Document for Project Files by referencing this checklist.
7.	End			

Now that the need for a treatment BMPs has been determined, other information is needed to complete the SWMP.

WATERSHED

Please check the watershed(s) for the project.

- | | | | |
|---------------------------------------|--|--|---|
| <input type="checkbox"/> San Juan | <input type="checkbox"/> Santa Margarita | <input checked="" type="checkbox"/> San Luis Rey | <input type="checkbox"/> Carlsbad |
| <input type="checkbox"/> San Dieguito | <input type="checkbox"/> Penasquitos | <input type="checkbox"/> San Diego | <input type="checkbox"/> Pueblo San Diego |
| <input type="checkbox"/> Sweetwater | <input type="checkbox"/> Otay | <input type="checkbox"/> Tijuana | |

Please provide the hydrologic sub-area and number(s)

Number	Name
903.16	UNNAMED INTERMITTENT STREAMS

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan For The San Diego Basin, which is available at the Regional Board office or at <http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html>.

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Inland Surface Waters	903.16	+	X	X					X	X		X		X		
Ground Waters	903.16															

X Existing Beneficial Use

0 Potential Beneficial Use

* Excepted from Municipal

POLLUTANTS OF CONCERN

Using Table 1, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

Table 1. Anticipated and Potential Pollutants Generated by Land Use Type

Priority Project Categories	General Pollutant Categories								
	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	p ⁽¹⁾	p ⁽²⁾	P	X
Commercial Development >100,000 ft ²	p ⁽¹⁾	p ⁽¹⁾		p ⁽²⁾	X	p ⁽⁵⁾	X	p ⁽³⁾	p ⁽⁵⁾
Automotive Repair Shops			X	X ⁽⁴⁾⁽⁵⁾	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft ²	X	X			X	X	X		X

Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

1,2 Inland Surface Waters	Hydrologic Unit Basin Number	BENEFICIAL USE															
		M U N	A G R	I N D	P R O C	G W R	F R S H	P O W	R E C 1	R E C 2	B I O L	W A R M	C O L D	W I L D	R A R E	S P W N	
		San Luis Rey River Watershed - continued															
unnamed intermittent streams	3.16	+	•	•							•	•		•			
Moosea Canyon	3.14	+	•	•							•	•		•			
Moosea Canyon	3.13	+	•	•							•	•		•			
Turner Lake	3.13																
See Reservoirs & Lakes- Table 2-4																	
South Fork Moosea Canyon	3.13	+	•	•							•	•		•			
Moosea Canyon	3.12	+	•	•							•	•		•			
Gopher Canyon	3.12	+	•	•							•	•		•			
South Fork Gopher Canyon	3.12	+	•	•							•	•		•			
San Luis Rey River	3.11	+	•	•							•	•		•			
Pilgrim Creek	3.11	+	•	•							•	•		•			
Windmill Canyon	3.11	+	•	•							•	•		•			
Tuley Canyon	3.11	+	•	•							•	•		•			
Lawrence Canyon	3.11	+	•	•							•	•		•			
Mouth of San Luis Rey River	3.11																
See Coastal Waters- Table 2-3																	
San Diego County Coastal Streams																	
Loma Alta Creek	4.10	+															
Loma Alta Slough	4.10																
See Coastal Waters- Table 2-3																	

- Existing Beneficial Use
 O Potential Beneficial Use
 + Excepted From MUN (See Text)
- 1 Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.
 2 Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

Table 2-5. BENEFICIAL USES OF GROUND WATERS

Ground Water		Hydrologic Unit Basin Number	BENEFICIAL USE													
			M	A	I	P	F	G	U	A	N	R	S	H	W	R
SANTA MARGARITA HYDROLOGIC UNIT			2.00													
Ysidora	HA	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Deluz	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Murrieta	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Alud	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Pechanga	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Wilson	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cave Rocks	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Aguanga	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Oakgrove	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
SAN LUIS REY HYDROLOGIC UNIT			3.00													
Lower San Luis	HA	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Monserate	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Pala	HSA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Pauma	HSA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
La Jolla Amago	HSA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Warner Valley	HA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Warner	HSA		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Combs	HSA		●	●	●	●	●	●	●	●	●	●	●	●	●	●

2 These beneficial uses do not apply westerly of the easterly boundary of the right-of-way of Interstate Highway 5 and this area is excepted from the sources of drinking water policy. The beneficial uses for the remainder of the hydrologic area are as shown.

- Existing Beneficial Use
- Potential Beneficial Use

Table 2-5
BENEFICIAL USES

EXCEPTIONAL THREAT TO WATER QUALITY DETERMINATION

Complete the checklist below to determine if a proposed project will pose an "exceptional threat to water quality," and therefore require Advanced Treatment Best Management Practices.

Table 6

No.	CRITERIA	YES	NO	INFORMATION
1.	Is all or part of the proposed project site within 200 feet of waters named on the Clean Water Act (CWA) Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity? Current 303d list may be obtained from the following site: http://www.swrcb.ca.gov/tmdl/docs/303dlists2006/approved/r9_06_303d_req_tmdls.pdf		✓	If YES, continue to 2. If NO, go to 5.
2.	Will the project disturb more than 5 acres, including all phases of the development?		✓	If YES, continue to 3. If NO, go to 5.
3.	Will the project disturb slopes that are steeper than 4:1 (horizontal: vertical) with at least 10 feet of relief, and that drain toward the 303(d) listed receiving water for sedimentation and/or turbidity?		✓	If YES, continue to 4. If NO, go to 5.
4.	Will the project disturb soils with a predominance of USDA-NRCS Erosion factors k_f greater than or equal to 0.4?		✓	If YES, continue to 6. If NO, go to 5.
5.	Project is not required to use Advanced Treatment BMPs.		✓	Document for Project Files by referencing this checklist.
6.	Project poses an "exceptional threat to water quality" and is required to use Advanced Treatment BMPs.		✓	Advanced Treatment BMPs must be consistent with WPO section 67.811(b)(20)(D) performance criteria

Exemption potentially available for projects that require advanced treatment:

Project proponent may perform a Revised Universal Soil Loss Equation, Version 2 (RUSLE 2), Modified Universal Soil Loss Equation (MUSLE), or similar analysis that shows to the County official's satisfaction that advanced treatment is not required

Now that the need for treatment BMPs has been determined, other information is needed to complete the SWMP.

LOW IMPACT DEVELOPMENT (LID)

Each numbered item below is a LID requirement of the WPO. Please check the box(s) under each number that best describes the Low Impact Development BMP(s) selected for this project.

Table 8

1. Conserve natural Areas, Soils, and Vegetation-County LID Handbook 2.2.1
<input type="checkbox"/> Preserve well draining soils (Type A or B)
<input checked="" type="checkbox"/> Preserve Significant Trees
<input checked="" type="checkbox"/> Other. Description: THE 2nd SITE WILL HAVE THE STRUCTURE LOCATED AT THE NORTHWEST PORTION; BY NOT CENTERING THE STRUCTURE SIGNIFICANT OPEN SPACE IS CONSERVED ON THE SITE.
<input type="checkbox"/> 1. Not feasible. State Reason:
2. Minimize Disturbance to Natural Drainages-County LID Handbook 2.2.2
<input checked="" type="checkbox"/> Set-back development envelope from drainages
<input checked="" type="checkbox"/> Restrict heavy construction equipment access to planned green/open space areas
<input type="checkbox"/> Other. Description:
<input type="checkbox"/> 2. Not feasible. State Reason:
3. Minimize and Disconnect Impervious Surfaces (see 5) -County LID Handbook 2.2.3
<input type="checkbox"/> Clustered Lot Design
<input checked="" type="checkbox"/> Items checked in 5?
<input type="checkbox"/> Other. Description:
<input type="checkbox"/> 3. Not feasible. State Reason:
4. Minimize Soil Compaction-County LID Handbook 2.2.4
<input checked="" type="checkbox"/> Restrict heavy construction equipment access to planned green/open space areas
<input checked="" type="checkbox"/> Re-till soils compacted by construction vehicles/equipment
Collect & re-use upper soil layers of development site containing organic materials
<input type="checkbox"/> Other. Description:
4. Not feasible. State Reason:
5. Drain Runoff from Impervious Surfaces to Pervious Areas-County LID Handbook 2.2.5

LID Street & Road Design	
<input type="checkbox"/>	Curb-cuts to landscaping
<input type="checkbox"/>	Rural Swales
<input type="checkbox"/>	Concave Median
<input type="checkbox"/>	Cul-de-sac Landscaping Design
<input checked="" type="checkbox"/>	Other. Description: <i>N/A → NO ROAD IMPROVEMENTS PROPOSED</i>
LID Parking Lot Design	
<input type="checkbox"/>	Permeable Pavements
<input type="checkbox"/>	Curb-cuts to landscaping
<input checked="" type="checkbox"/>	Other. Description: <i>- DRIVEWAY DESIGNED TO DRAIN TO THE SOUTHWEST AND DISCHARGED TO LAWN AREA.</i>
LID Driveway, Sidewalk, Bike-path Design	
<input type="checkbox"/>	Permeable Pavements
<input checked="" type="checkbox"/>	Pitch pavements toward landscaping
<input type="checkbox"/>	Other. Description:
LID Building Design	
<input type="checkbox"/>	Cisterns & Rain Barrels
<input checked="" type="checkbox"/>	Downspout to swale
<input type="checkbox"/>	Vegetated Roofs
<input type="checkbox"/>	Other. Description:
LID Landscaping Design	
<input type="checkbox"/>	Soil Amendments
<input type="checkbox"/>	Reuse of Native Soils
<input checked="" type="checkbox"/>	Smart Irrigation Systems
<input type="checkbox"/>	Street Trees
<input type="checkbox"/>	Other. Description:
<input type="checkbox"/> 5. Not feasible. State Reason:	

Priority Project Categories	General Pollutant Categories								
	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Parking Lots	P ⁽¹⁾	P ⁽¹⁾	X		X	P ⁽¹⁾	X		P ⁽¹⁾
Streets, Highways & Freeways	X	P ⁽¹⁾	X	X ⁽⁴⁾	X	P ⁽⁵⁾	X		
X = anticipated P = potential (1) A potential pollutant if landscaping exists on-site. (2) A potential pollutant if the project includes uncovered parking areas. (3) A potential pollutant if land use involves food or animal waste products. (4) Including petroleum hydrocarbons. (5) Including solvents.									

Note: If other monitoring data that is relevant to the project is available. Please include as Attachment C.

CONSTRUCTION BMPs

Please check the construction BMPs that may be used. The BMPs selected are those that will be implemented during construction of the project. The applicant is responsible for the placement and maintenance of the BMPs selected.

- | | |
|--|--|
| <input checked="" type="checkbox"/> Silt Fence | <input type="checkbox"/> Desilting Basin |
| <input checked="" type="checkbox"/> Fiber Rolls | <input checked="" type="checkbox"/> Gravel Bag Berm |
| <input checked="" type="checkbox"/> Street Sweeping and Vacuuming | <input checked="" type="checkbox"/> Sandbag Barrier |
| <input type="checkbox"/> Storm Drain Inlet Protection | <input checked="" type="checkbox"/> Material Delivery and Storage |
| <input checked="" type="checkbox"/> Stockpile Management | <input checked="" type="checkbox"/> Spill Prevention and Control |
| <input checked="" type="checkbox"/> Solid Waste Management | <input checked="" type="checkbox"/> Concrete Waste Management |
| <input checked="" type="checkbox"/> Stabilized Construction Entrance/Exit | <input checked="" type="checkbox"/> Water Conservation Practices |
| <input type="checkbox"/> Dewatering Operations | <input checked="" type="checkbox"/> Paving and Grinding Operations |
| <input checked="" type="checkbox"/> Vehicle and Equipment Maintenance | |
| <input checked="" type="checkbox"/> Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval. | |

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If

YES is checked, it is assumed that the measure was used for this project. If NO is checked, please provide a brief explanation why the option was not selected in the text box below.

	OPTIONS	YES	NO	N/A
1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?	✓		
2.	Can the project be designed to minimize impervious footprint?	✓		
3.	Conserve natural areas where feasible?	✓		
4.	Where landscape is proposed, can rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?	✓		
5.	For roadway projects, can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?			✓
6.	Can any of the following methods be utilized to minimize erosion from slopes:	✓		
6.a.	Disturbing existing slopes only when necessary?	✓		
6.b.	Minimize cut and fill areas to reduce slope lengths?	✓		
6.c.	Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	✓		
6.d.	Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	✓		
6.e.	Rounding and shaping slopes to reduce concentrated flow?	✓		
6.f.	Collecting concentrated flows in stabilized drains and channels?	✓		

Please provide a brief explanation for each option that was checked N/A or NO in the following box.

NO Roadway work proposed; Driveways located as to not impact streams.

If the project includes work in channels, then complete the following checklist. Information shall be obtained from the project drainage report.

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project increase velocity or volume of downstream flow?		✓		If YES go to 5.
2.	Will the project discharge to unlined channels?	✓			If YES go to 5.
3.	Will the project increase potential sediment load		✓		If YES go to 5.

No.	CRITERIA	YES	NO	N/A	COMMENTS
	of downstream flow?				
4.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect upstream and/or downstream channel stability?		✓		If YES go to 7.
5.	Review channel lining materials and design for stream bank erosion.	✓			Continue to 6.
6.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.	✓			Continue to 7.
7.	Include, where appropriate, energy dissipation devices at culverts.	✓			Continue to 8.
8.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	✓			Continue to 9.
9.	Include, if appropriate, detention facilities to reduce peak discharges.	✓			
10.	"Hardening" natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.	✓	✓		Continue to 11.
11.	Provide other design principles that are comparable and equally effective.	✓			Continue to 12.
12.	End				

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

BMP			YES	NO	N/A
1.	Provide Storm Drain System Stenciling and Signage				
	1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING - DRAINS TO _____") and/or graphical icons to discourage illegal dumping.			✓
	1.b.	Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.	✓		
2.	Design Outdoors Material Storage Areas to Reduce Pollution Introduction				
	2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.	✓		

BMP		YES	NO	N/A
2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.	✓		
2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.	✓		
2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.	✓		
3.	Design Trash Storage Areas to Reduce Pollution Introduction			
3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or,	✓		
3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.	✓		
4.	Use Efficient Irrigation Systems & Landscape Design			
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.			
4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	✓		
4.b.	Designing irrigation systems to each landscape area's specific water requirements.	✓		
4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	✓		
4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.	✓		
5.	Private Roads			
	The design of private roadway drainage shall use at least one of the following			
5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.	✓		
5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.			✓
5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.			✓
5.d.	Other methods that are comparable and equally effective within the project.	✓		
6.	Residential Driveways & Guest Parking			
	The design of driveways and private residential parking areas shall use one at least of the following features.			
6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.	✓		
6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.	✓		
6.c.	Other features which are comparable and equally effective.			
7.	Dock Areas			

BMP		YES	NO	N/A
	Loading/unloading dock areas shall include the following.			
7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			✓
7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			✓
7.c.	Other features which are comparable and equally effective.			✓
8.	Maintenance Bays			
	Maintenance bays shall include the following.			
8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			✓
8.b.	Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.			✓
8.c.	Other features which are comparable and equally effective.			✓
9.	Vehicle Wash Areas			
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.			
9.a.	Self-contained; or covered with a roof or overhang.			✓
9.b.	Equipped with a clarifier or other pretreatment facility.			✓
9.c.	Properly connected to a sanitary sewer.			✓
9.d.	Other features which are comparable and equally effective.			✓
10.	Outdoor Processing Areas			
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.			
10.a.	Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			✓
10.b.	Grade or berm area to prevent run-on from surrounding areas.	✓		
10.c.	Installation of storm drains in areas of equipment repair is prohibited.			✓
10.d.	Other features which are comparable or equally effective.			✓
11.	Equipment Wash Areas			
	Outdoor equipment/accessory washing and steam cleaning activities shall be.			
11.a.	Be self-contained; or covered with a roof or overhang.			✓
11.b.	Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate			✓
11.c.	Be properly connected to a sanitary sewer.			✓
11.d.	Other features which are comparable or equally effective.			✓
12.	Parking Areas			
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.			
12.a.	Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.	✓		

BMP			YES	NO	N/A
12.b.	Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.				✓
12.c.	Other design concepts that are comparable and equally effective.				✓
13.	Fueling Area				
	Non-retail fuel dispensing areas shall contain the following.				✓
13.a.	Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.				✓
13.b.	Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.				✓
13.c.	Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.				✓
13.d.	At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.				✓

Please list other project specific Source Control BMPs in the following box. Write N/A if there are none and briefly explain.

~~None~~ - VEGETATIVE DISTURBED AREAS TO REDUCE EROSION.

TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 2), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 1). Any pollutants identified by Table 1, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 2, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern.

Priority projects that are not anticipated to generate a pollutant for which the receiving water is Clean Water Act Section 303(d) impaired shall select a single or combination of stormwater BMPs from Table 2, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the "maximum extent practicable" standard.

Table 2. Treatment Control BMP Selection Matrix

Pollutant of Concern	Treatment Control BMP Categories						
	Biofilters	Detention Basins	Infiltration Basins ⁽²⁾	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems ⁽³⁾
Sediment	M	H	H	H	L	H	M
Nutrients	L	M	M	M	L	M	L
Heavy Metals	M	M	M	H	L	H	L
Organic Compounds	U	U	U	M	L	M	L
Trash & Debris	L	H	U	H	M	H	M
Oxygen Demanding Substances	L	M	M	M	L	M	L
Bacteria	U	U	H	H	L	M	L
Oil & Grease	M	M	U	U	L	H	L
Pesticides	U	U	U	L	L	U	L

(1) Copeemitees are encouraged to periodically assess the performance characteristics of many of these BMPs to update this table.

(2) Including trenches and porous pavement.

(3) Also known as hydrodynamic devices and baffle boxes.

L: Low removal efficiency:
M: Medium removal efficiency:
H: High removal efficiency:
U: Unknown removal efficiency

Sources: *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (1993), *National Stormwater Best Management Practices Database* (2001), *Guide for BMP Selection in Urban Developed Areas* (2001), and *Caltrans New Technology Report* (2001).

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality values for the project. Label outfalls on the BMP map. Q_{WQ} is dependent on the type of treatment BMP selected for the project.

Outfall	Tributary Area (acres)	Q_{100} (cfs)	Q_{WQ} (cfs)
10	17.3	32.62	0.41
20	192.43	266.4	0.41

} 0.41 cfs for entire project site

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters

- ☒ Grass swale
- ☐ Grass strip
- ☐ Wetland vegetation swale
- ☐ Bioretention

Detention Basins

- ☐ Extended/dry detention basin with grass lining
- ☐ Extended/dry detention basin with impervious lining

Infiltration Basins

- ☐ Infiltration basin
- ☐ Infiltration trench
- ☐ Porous asphalt
- ☐ Porous concrete
- ☐ Porous modular concrete block

Wet Ponds or Wetlands

- ☐ Wet pond/basin (permanent pool)
- ☐ Constructed wetland

Drainage Inserts (See note below)

- ☐ Oil/Water separator
- ☐ Catch basin insert
- ☐ Storm drain inserts
- ☐ Catch basin screens

Filtration

- ☐ Media filtration
- ☐ Sand filtration

Hydrodynamic Separator Systems

- ☐ Swirl Concentrator
- ☐ Cyclone Separator
- ☐ Baffle Separator
- ☐ Gross Solids Removal Device
- ☐ Linear Radial Device

Note: Catch basin inserts and storm drain inserts are excluded from use on County maintained right-of-way and easements.

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	COMPLETED	NO
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	✓	
2. Engineering calculations for the BMP(s)	✓	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation and justification.

MOST ECONOMIC DEVICE. CREAS HAVE SWALE ACCESSIBILITY WILL HELP ENSURE PROPER FUNCTION, AS WELL AS EASE OF MAINTENANCE.

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project.

CATEGORY	SELECTED	
	YES	NO
First	✓	
Second		✓
Third		✓
Fourth		✓

Please briefly describe the long-term fiscal resources for the selected maintenance mechanism(s).

Property owner will be responsible for maintenance.

ATTACHMENTS

Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Project Location Map	✓	
B	Site Map	✓	
C	Relevant Monitoring Data		✓
D	Treatment BMP Location Map	✓	
E	Treatment BMP Datasheets	✓	
F	Operation and Maintenance Program for Treatment BMPs	✓	
G	Engineer's Certification Sheet	✓	

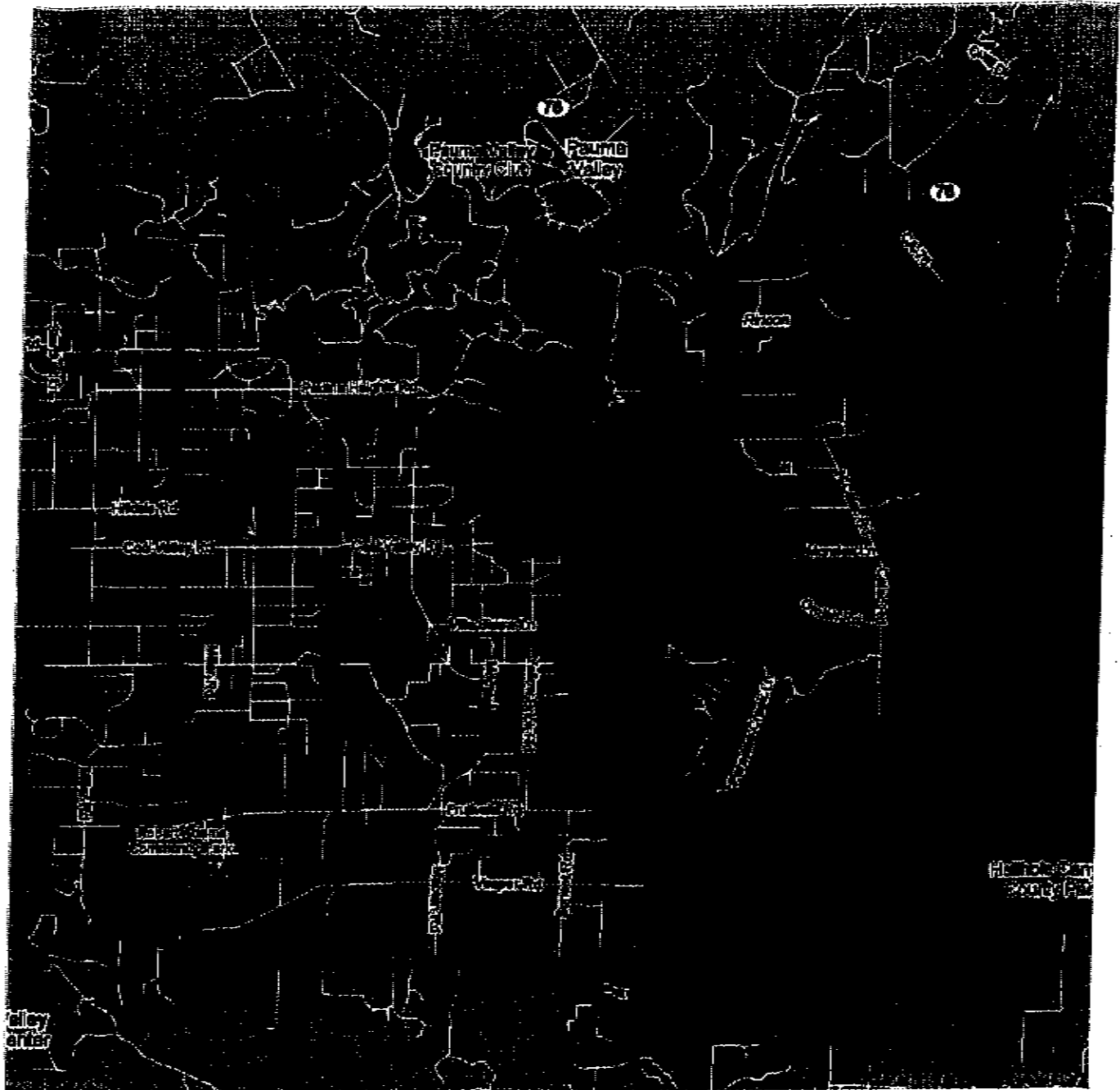
Note: Attachments A and B may be combined.

ATTACHMENT A

LOCATION MAP



Address 29610 Mac Tan Rd
Valley Center, CA 92082



ATTACHMENT B

PROJECT SITE MAP

SCALE IN FEET
SCALE 1" = 100'



ATTACHMENT C

RELEVANT MONITORING DATA

(NOTE: PROVIDE RELEVANT WATER QUALITY MONITORING DATA IF AVAILABLE.)

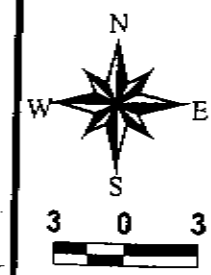
County of San Diego Hydrology Manual



Soil Hydrologic Groups

Legend

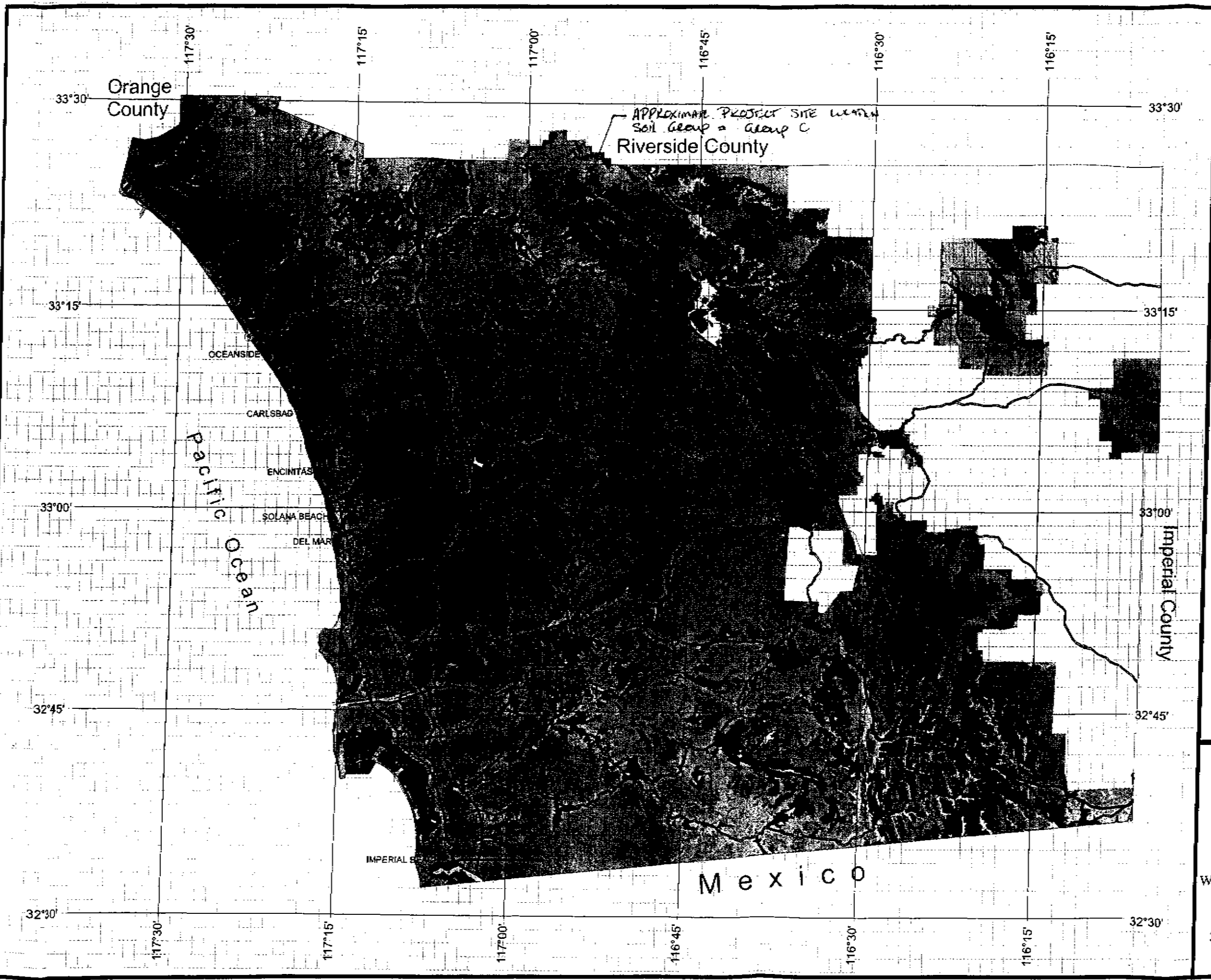
Soil Groups	
	Group A
	Group B
	Group C
	Group D
	Undetermined
	Data Unavailable



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County of San Diego Hydrology Manual



Rainfall Isophvials

100 Year Rainfall Event - 6 Hours

----- Isopluvial (Inches)

**DPW
GIS**
Department of Public Works
Geographic Information Systems

SanGIS
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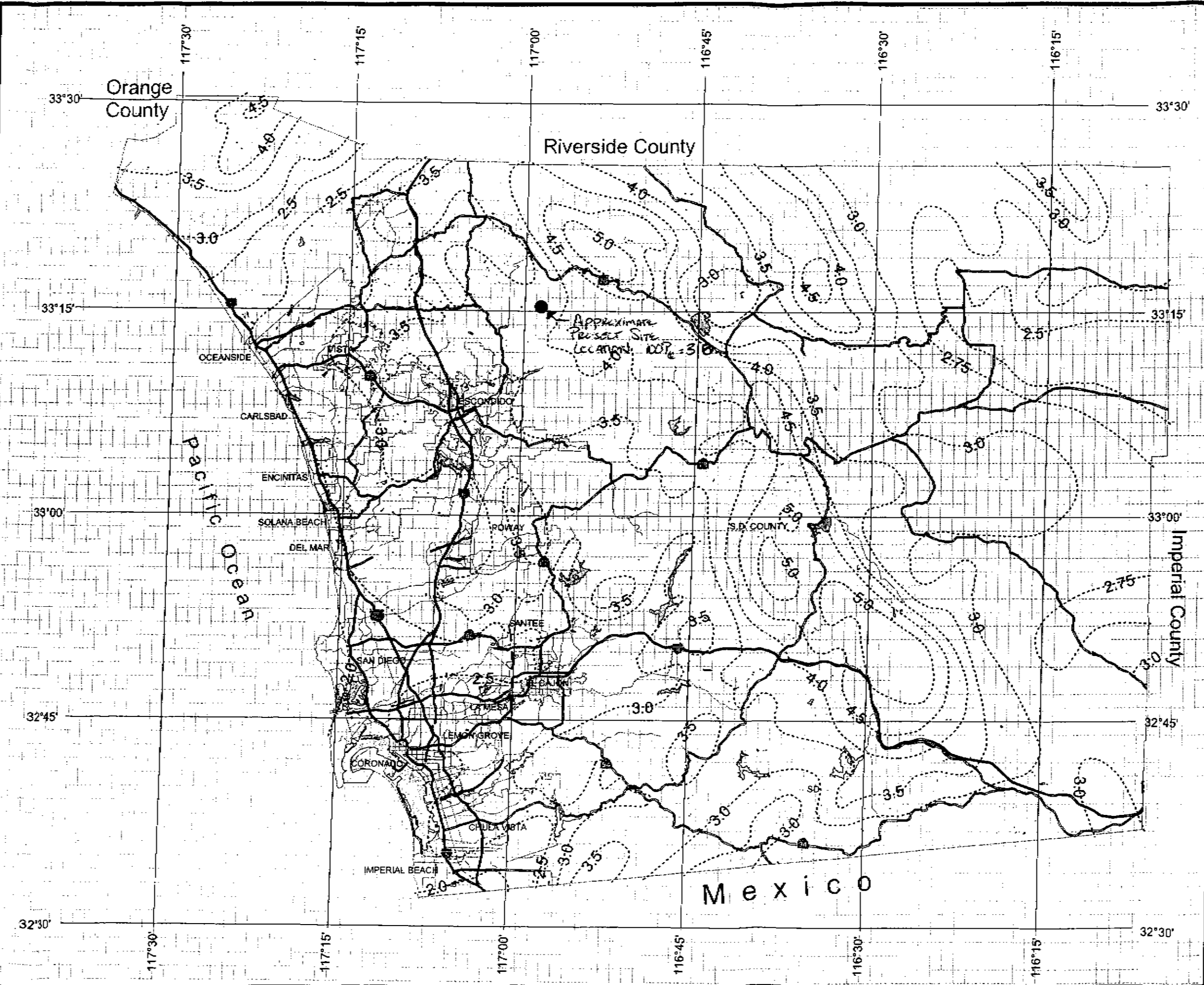


3 0 3 Miles

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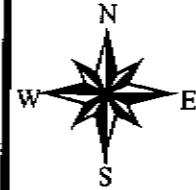
County of San Diego Hydrology Manual



Rainfall Isophyvals

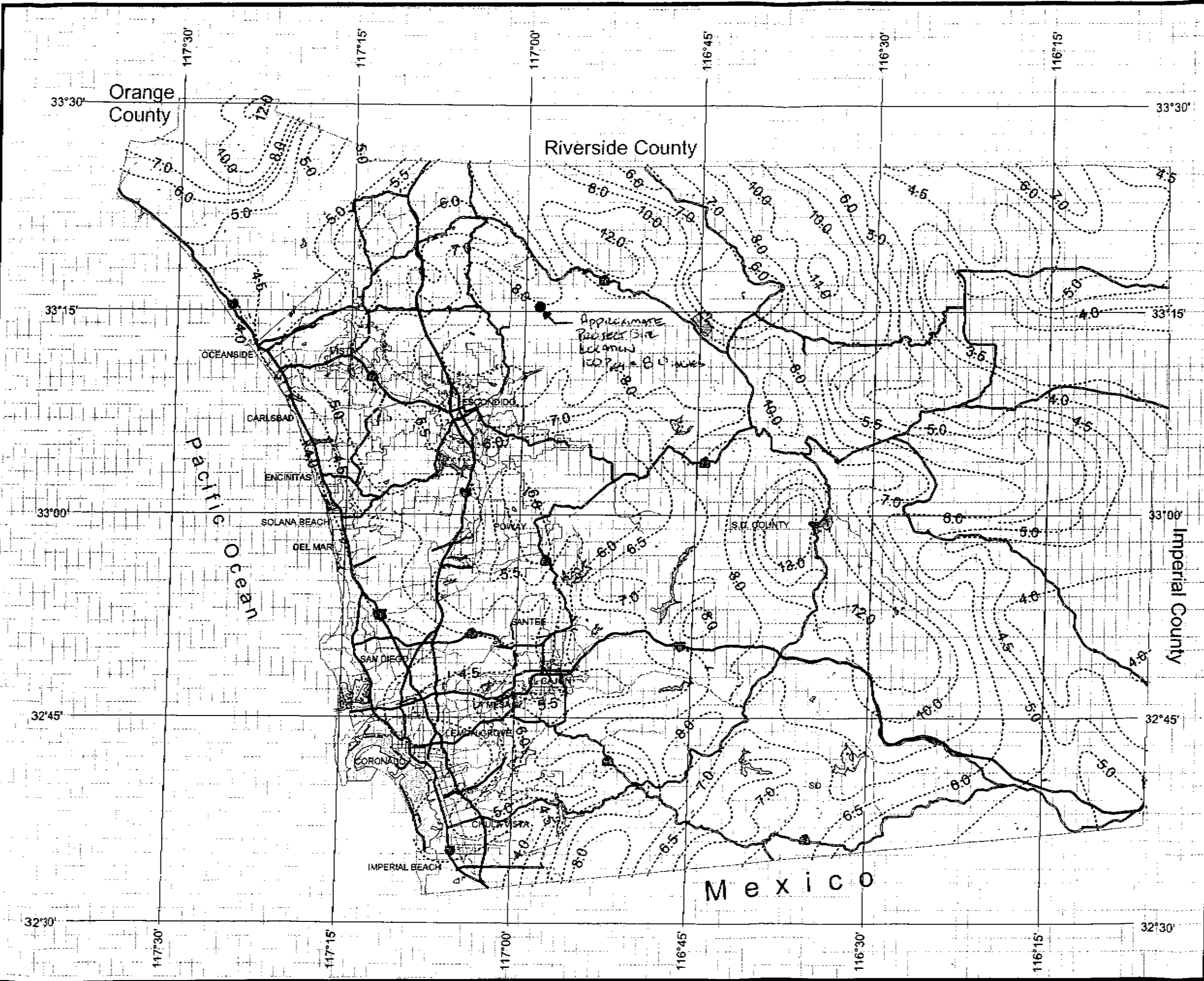
100 Year Rainfall Event - 24 Hours

----- Isophyval (inches)



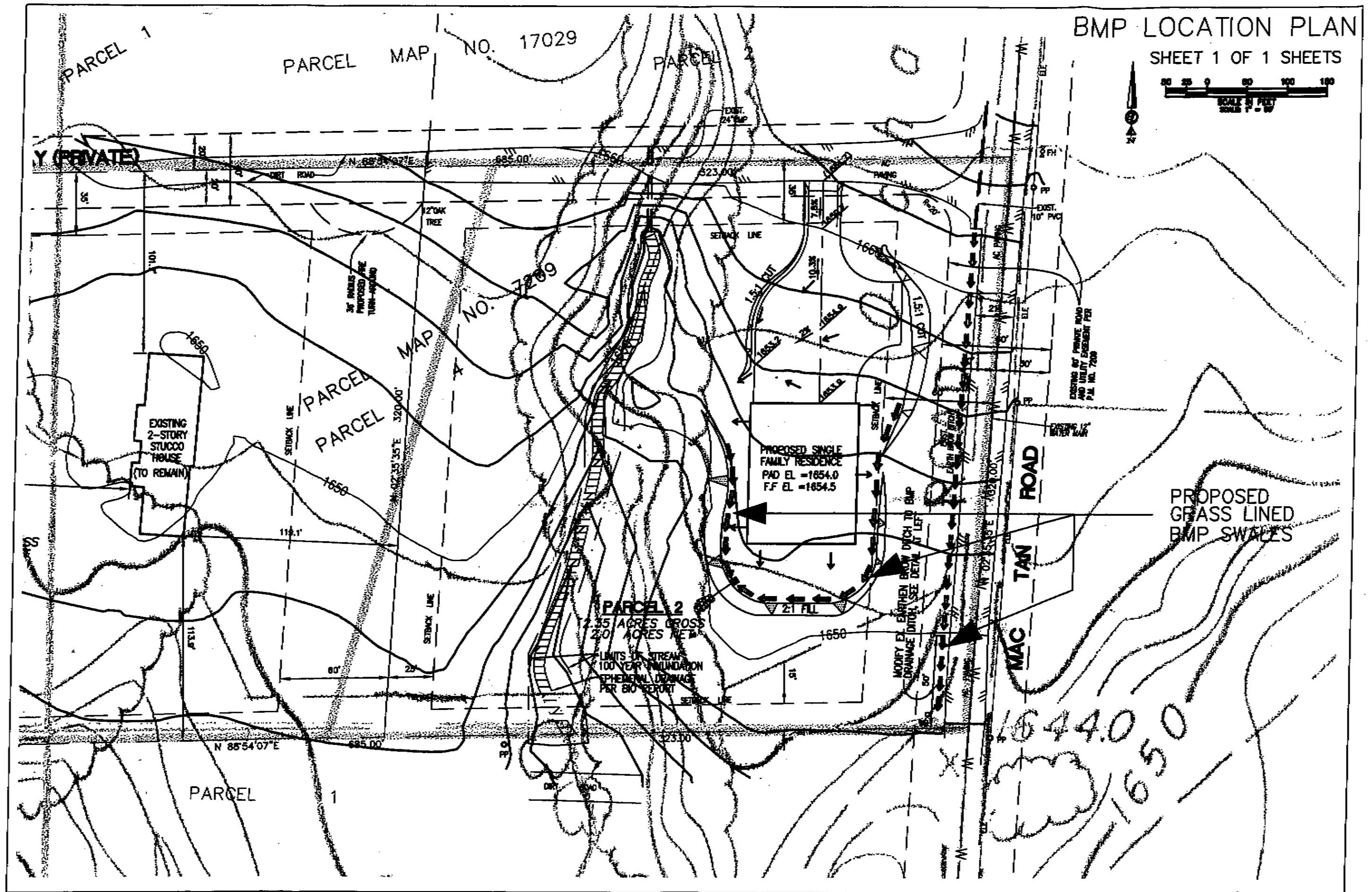
3 0 3 Miles

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ATTACHMENT D

LID AND TREATMENT BMP LOCATION MAP



ATTACHMENT E

TREATMENT BMP DATASHEET

*(NOTE: POSSIBLE SOURCE FOR DATASHEETS CAN BE FOUND AT
WWW.CABMPHANDBOOKS.COM. INCLUDE ENGINEERING CALCULATIONS FOR SIZING THE
TREATMENT BMP.)*

85TH PERCENTILE PEAK FLOW AND VOLUME DETERMINATION
Modified Rational Method - Effective for Watersheds < 1.0 mi²

Note: Only Enter Values in Boxes - Spreadsheet Will Calculate Remaining Values

Project Name
Work Order
Jurisdiction

BMP Location

85th Percentile Rainfall = inches
(from County Isoplethial Map)

Developed Drainage Area = acres
Natural Drainage Area = acres
Total Drainage Area to BMP = acres

Dev. Area Percent Impervious = %
Overall Percent Impervious = %

Dev. Area Runoff Coefficient =
Nat. Area Runoff Coefficient =
Runoff Coefficient =

Time of Concentration = minutes
(from Drainage Study)

RATIONAL METHOD RESULTS

Q = CIA where Q = 85th Percentile Peak Flow (cfs)
C = Runoff Coefficient
I = Rainfall Intensity (0.2 inch/hour per RWQCB mandate)
A = Drainage Area (acres)

V = CPA where V = 85th Percentile Runoff Volume (acre-feet)
C = Runoff Coefficient
P = 85th Percentile Rainfall (inches)
A = Drainage Area (acres)

Using the Total Drainage Area:

C =
I =
P =
A =
Q =
V =

Using Developed Area Only:

C =
I =
P =
A =
Q =
V =

Grassy Swale Design Spreadsheet

Given:
 Design flow 0.41 cfs
 Residence time (req) 10 minutes

Trapezoid Channel Design Parameters:

y 0.25 feet
 t 6 feet
 w 4 feet
 SS1:SS2 4 ft/ft
 A 1.25 sq ft

Find Qmax of channel:

Q= $(1.49/n) * A * R^{2/3} * s^{1/2}$
 n 0.2
 s 0.01 ft/ft (long. Slope)
 r 0.217391 ft

Q= 0.336688 cfs

Required Length of Channel:

L=vt

Therefore:

L= 196.8

PROJECT DESIGN TO USE: L= 200

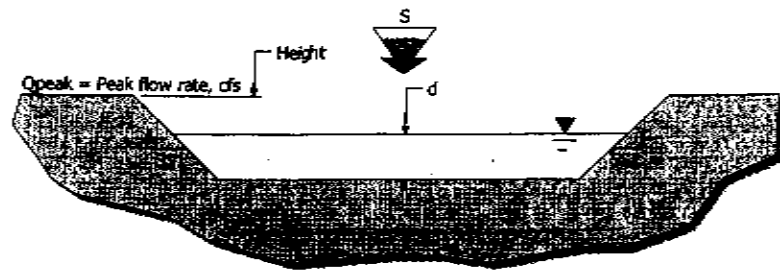


Diagram of Swale Variables Used in Spreadsheet

Find Velocity in channel

$V=Q/A$

Therefore:

V= 0.326 fps

ATTACHMENT F

OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMP

*(NOTE: INFORMATION REGARDING OPERATION AND MAINTENANCE CAN BE OBTAINED
FROM THE FOLLOWING WEB SITE:*

[HTTP://WWW.SDCOUNTY.CA.GOV/DPW/WATERSHEDS/LAND_DEV/SUSMP.HTML.](http://www.sdcountry.ca.gov/dpw/watersheds/land_dev/susmp.html))

Bio-Filters

The operational and maintenance needs of a Bio-filter Swale are:

- Vegetation management to maintain adequate hydraulic functioning and to limit habitat for disease-carrying animals.
- Animal and vector control.
- Periodic sediment removal to optimize performance.
- Trash, debris, grass trimmings, tree pruning, and leaf collection and removal to prevent obstruction of a Swale and monitoring equipment.
- Erosion and structural maintenance to prevent the loss of soil and maintain the performance of the Swale.

Functional Maintenance

Functional maintenance has two components:

- Preventive maintenance
- Corrective maintenance

Preventive Maintenance

Preventive maintenance activities to be instituted at a Bio-filter Swale are:

- **Trash and Debris.** During each inspection and maintenance visit to the site, debris and trash removal will be conducted to reduce the potential for inlet and outlet structures and other components from becoming clogged and inoperable during storm events.
- **Sediment Removal.** Sediment accumulation, as part of the operation and maintenance program at a Swale, will be monitored once a month during the dry season, after every large storm (0.50 inch), and monthly during the wet season. Specifically, if sediment reaches a level at or near plant height, or could interfere with flow or operation, the sediment will be removed. If accumulation of debris or sediment is determined to be the cause of decline in design performance, prompt action (i.e., within ten working days) will be taken to restore the Swale to design performance standards. Removal of Standing Water. Standing water must be removed if it contributes to the development of aquatic plant communities or mosquito breeding areas.
- **Fertilization and Irrigation.** The vegetation seed mix has been designed so that fertilization and irrigation is not necessary. Fertilizers and irrigation will not be used to maintain the vegetation.

- **Elimination of Mosquito Breeding Habitats.** The most effective mosquito control program is one that eliminates potential breeding habitats.

Corrective Maintenance

Corrective maintenance is required on an emergency or non-routine basis to correct problems and to restore the intended operation and safe function of a Bio-filter Swale. Corrective maintenance activities include:

- **Removal of Debris and Sediment.** Sediment, debris, and trash, which impede the hydraulic functioning of a Swale and prevent vegetative growth, will be removed and properly disposed.
- **Structural Repairs.** Once deemed necessary, repairs to structural components of a Swale and its inlet and outlet structures will be done within 10 working days.
- **Embankment and Slope Repairs.** Once deemed necessary, damage to the embankments and slopes of Swales will be repaired within 10 working days).
- **Erosion Repair.** Where a reseeding program has been ineffective, or where other factors have created erosive conditions (i.e., pedestrian traffic, concentrated flow, etc.), corrective steps will be taken to prevent loss of soil and any subsequent danger to the performance of a Swale. There are a number of corrective actions that can be taken. These include erosion control blankets, riprap.

ATTACHMENT G

FISCAL RESOURCES

5.2 Maintenance Category

Bio-swales: Category 1

As described in the County Stormwater Maintenance Plan, bio-filters (grassy swales) within the Tam TPM fall within the "First Category". The maintenance of the bio-filters (grassy swales), used as pad treatment, will be the responsibility of the individual private land owner. The County should have only minimal concerns for ongoing maintenance. The proposed Bio-filter inherently "take care of themselves", or property owners can naturally be expected to do so as an incident of taking care of their property.

5.3 Annual Cost of Maintenance

ANNUAL COST ESTIMATE:

Grassy swale Bio-filter Bmp maintenance -	\$2972.42
TOTAL: \$2,972.42	

TWO-YEAR COST ESTIMATE:

Grassy swale Bio-filter Bmp maintenance -	\$5944.84
TOTAL: \$5,944.84	

TEN-YEAR COST ESTIMATE:

Grassy swale Bio-filter Bmp maintenance -	\$29724.20
TOTAL: \$29,724.20	

6.0 FISCAL RESOURCES

The maintenance of the landscaping berm will be performed as necessary by the private land owner. The land owner will be subject to all applicable ordinances referenced herein.

The maintenance of the biofiltration swales will be performed as necessary by the land owner and the site managers and once the development is complete the homeowner will assume all financial responsibility for ensuring that the treatment devices are maintained. The land owner and the site managers will be subject to all applicable ordinances referenced herein.

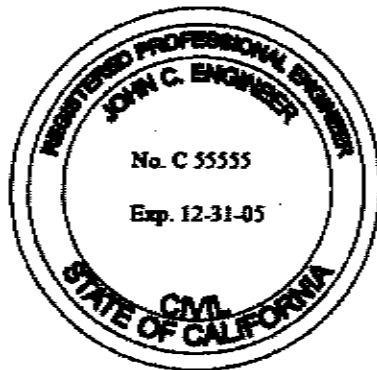
ATTACHMENT H

CERTIFICATION SHEET

This Stormwater Management Plan has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

JOHN C. ENGINEER
REGISTERED CIVIL ENGINEER

DATE



Storm Water Management Plan for
29610 Mac Tan Road, Valley Center

This Stormwater Management Plan has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Douglas E. Logan
REGISTERED CIVIL ENGINEER

DATE

ATTACHMENT I

ADDENDUM